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JUN 10 2005
PATENT & TRADEMARK OFFICE

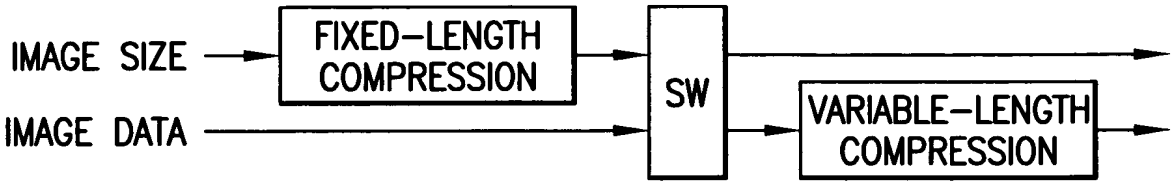


FIG.1A

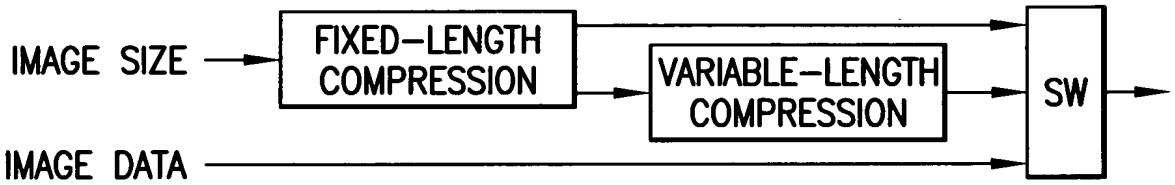


FIG.1A

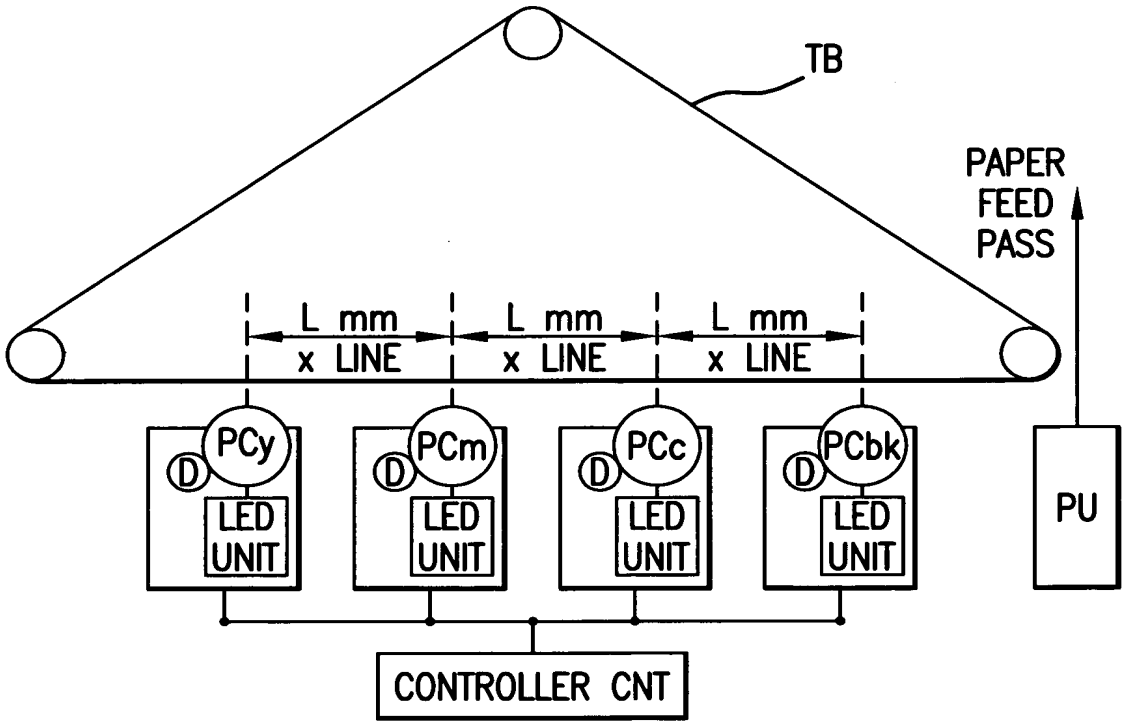


FIG.11

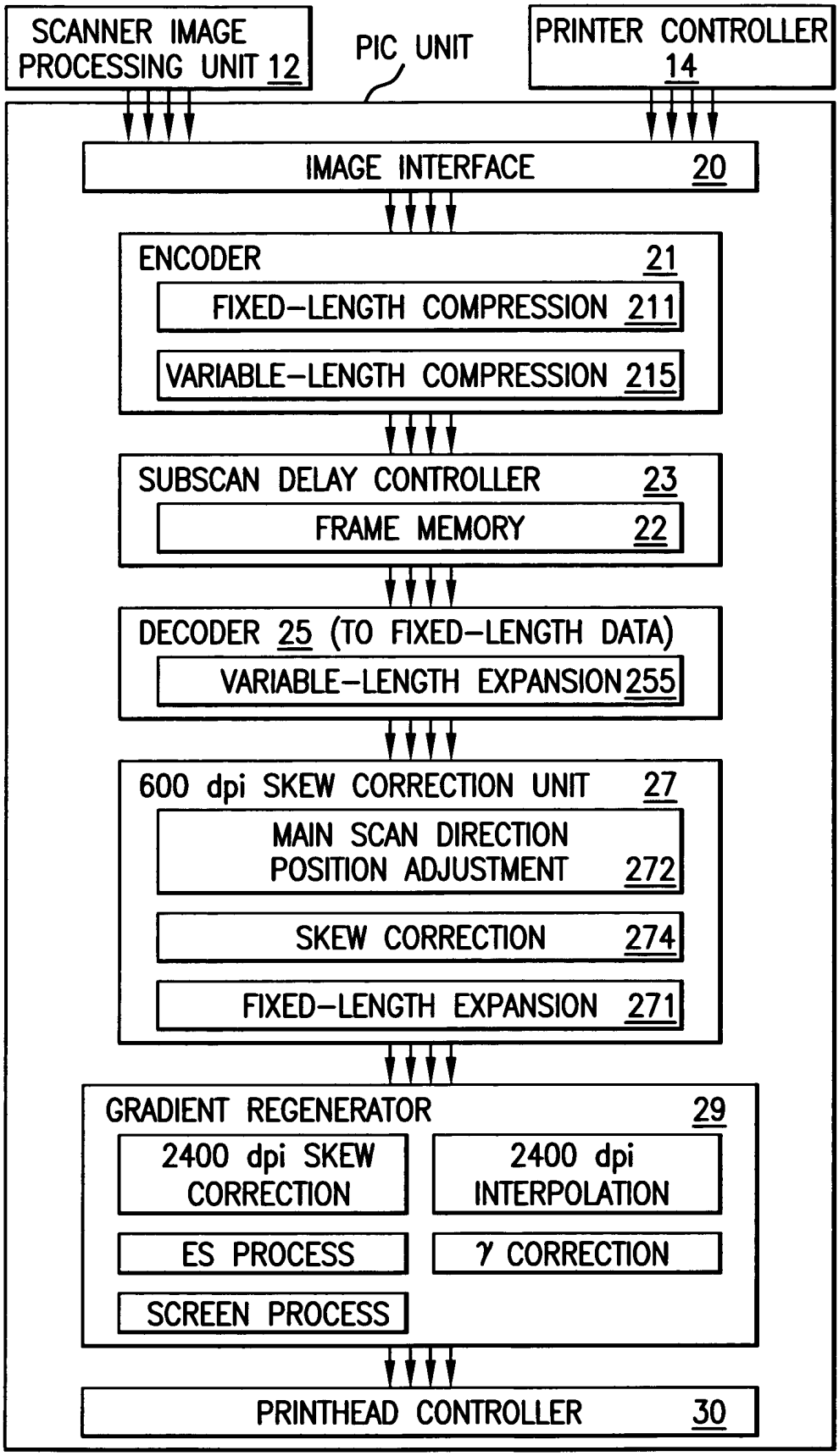

SCANNER IMAGE PROCESSING UNIT 12
PIC UNIT
PRINTER CONTROLLER 14
IMAGE INTERFACE 20
ENCODER 21
FIXED-LENGTH COMPRESSION 211
VARIABLE-LENGTH COMPRESSION 215
SUBSCAN DELAY CONTROLLER 23
FRAME MEMORY 22
DECODER 25 (TO FIXED-LENGTH DATA)
VARIABLE-LENGTH EXPANSION 255
600 dpi SKEW CORRECTION UNIT 27
MAIN SCAN DIRECTION POSITION ADJUSTMENT 272
SKEW CORRECTION 274
FIXED-LENGTH EXPANSION 271
GRADIENT REGENERATOR 29
2400 dpi SKEW CORRECTION
2400 dpi INTERPOLATION
ES PROCESS
γ CORRECTION
SCREEN PROCESS
PRINTHEAD CONTROLLER 30

FIG.2

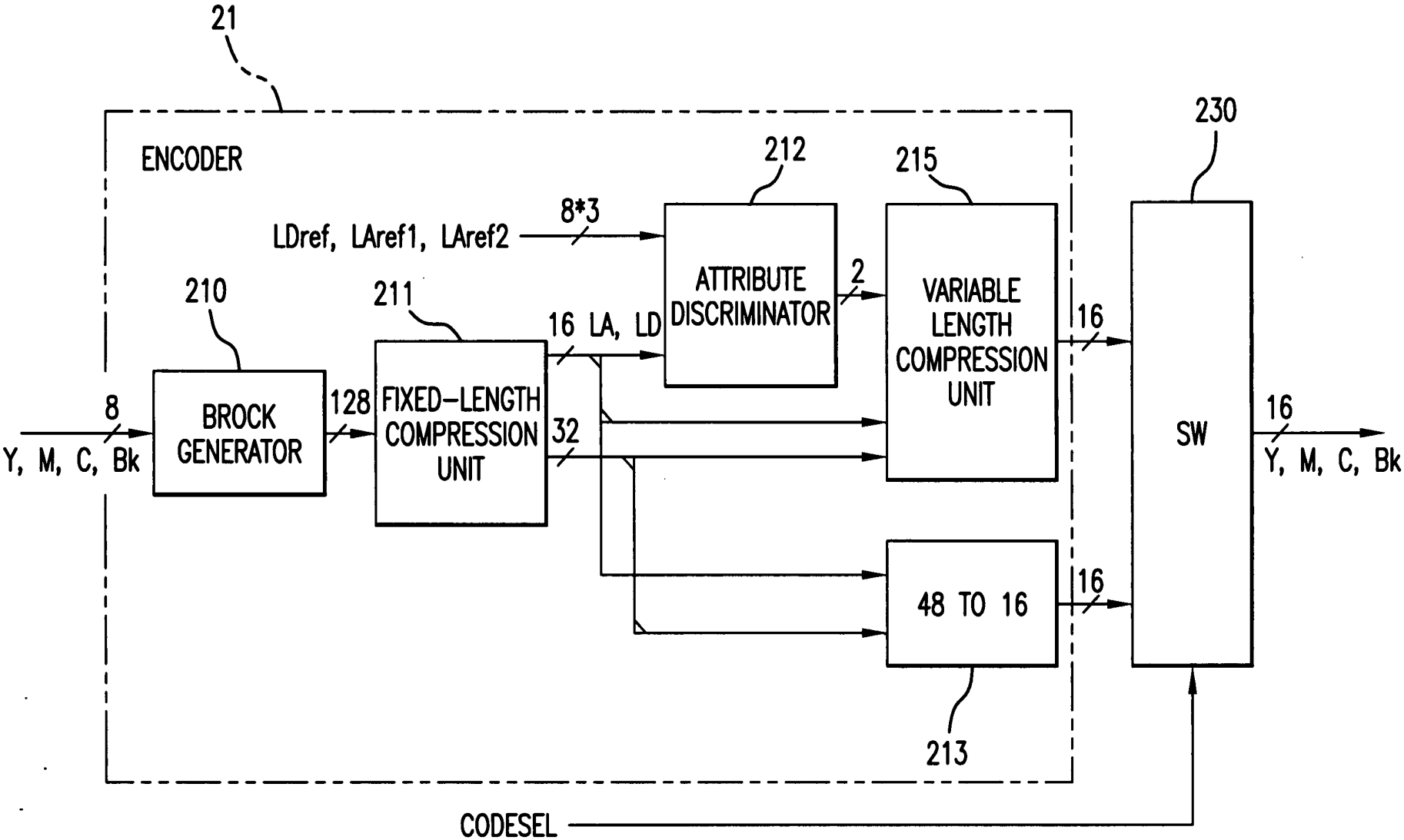

21
ENCODER
212
215
230
LDref, LAref1, LAref2
8*3
ATTRIBUTE DISCRIMINATOR
2
VARIABLE LENGTH COMPRESSION UNIT
16
210
211
16 LA, LD
8
Y, M, C, Bk
BROCK GENERATOR
128
FIXED-LENGTH COMPRESSION UNIT
32
SW
16
Y, M, C, Bk
48 TO 16
16
213
CODESEL

FIG.3

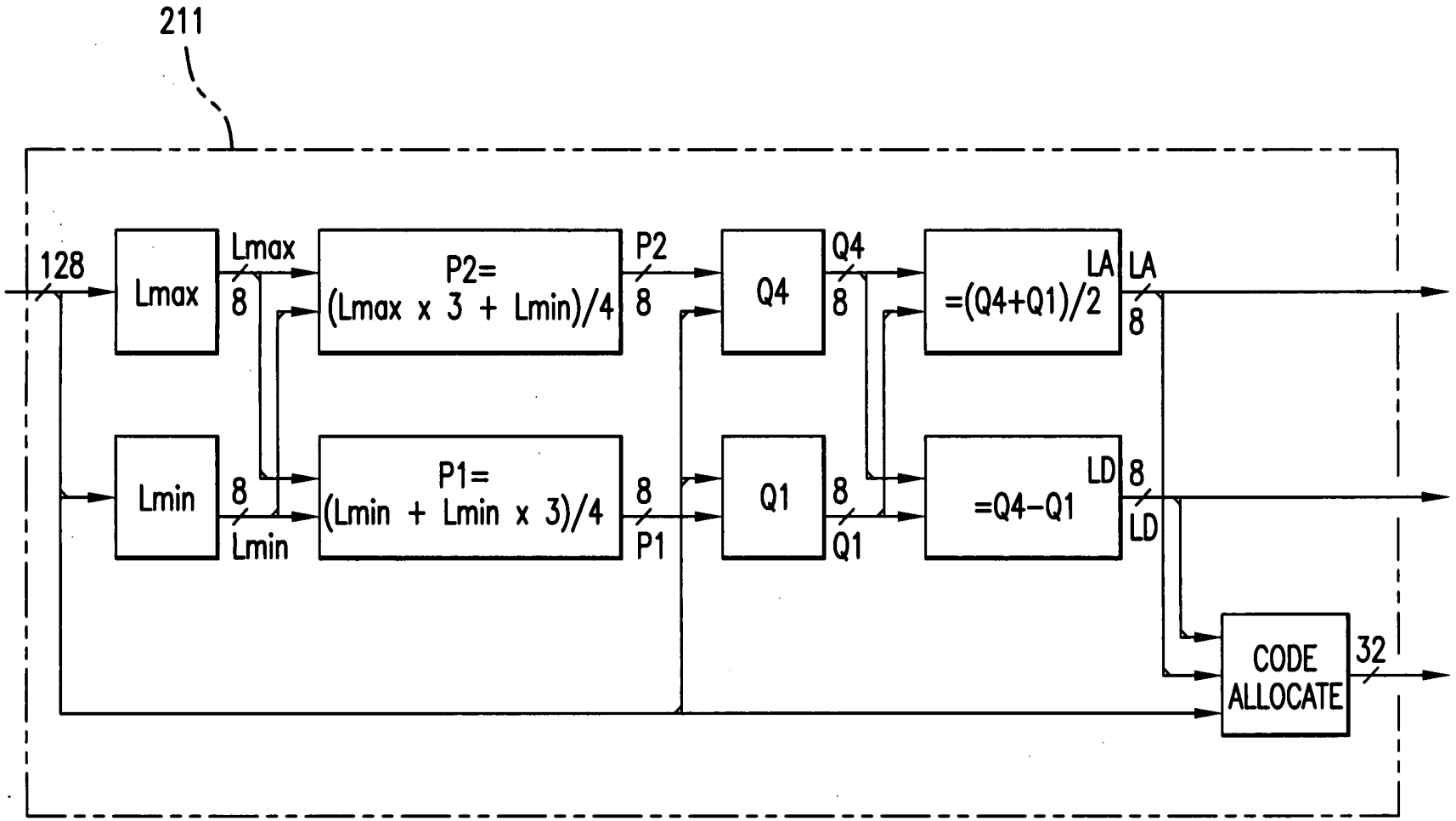

211
128
Lmax
Lmax
8
P2=
(Lmax x 3 + Lmin)/4
P2
8
Q4
Q4
8
LA
=(Q4+Q1)/2
LA
8
Lmin
8
Lmin
P1=
(Lmin + Lmin x 3)/4
8
P1
Q1
8
Q1
LD
=Q4-Q1
8
LD
CODE
ALLOCATE
32

FIG.4

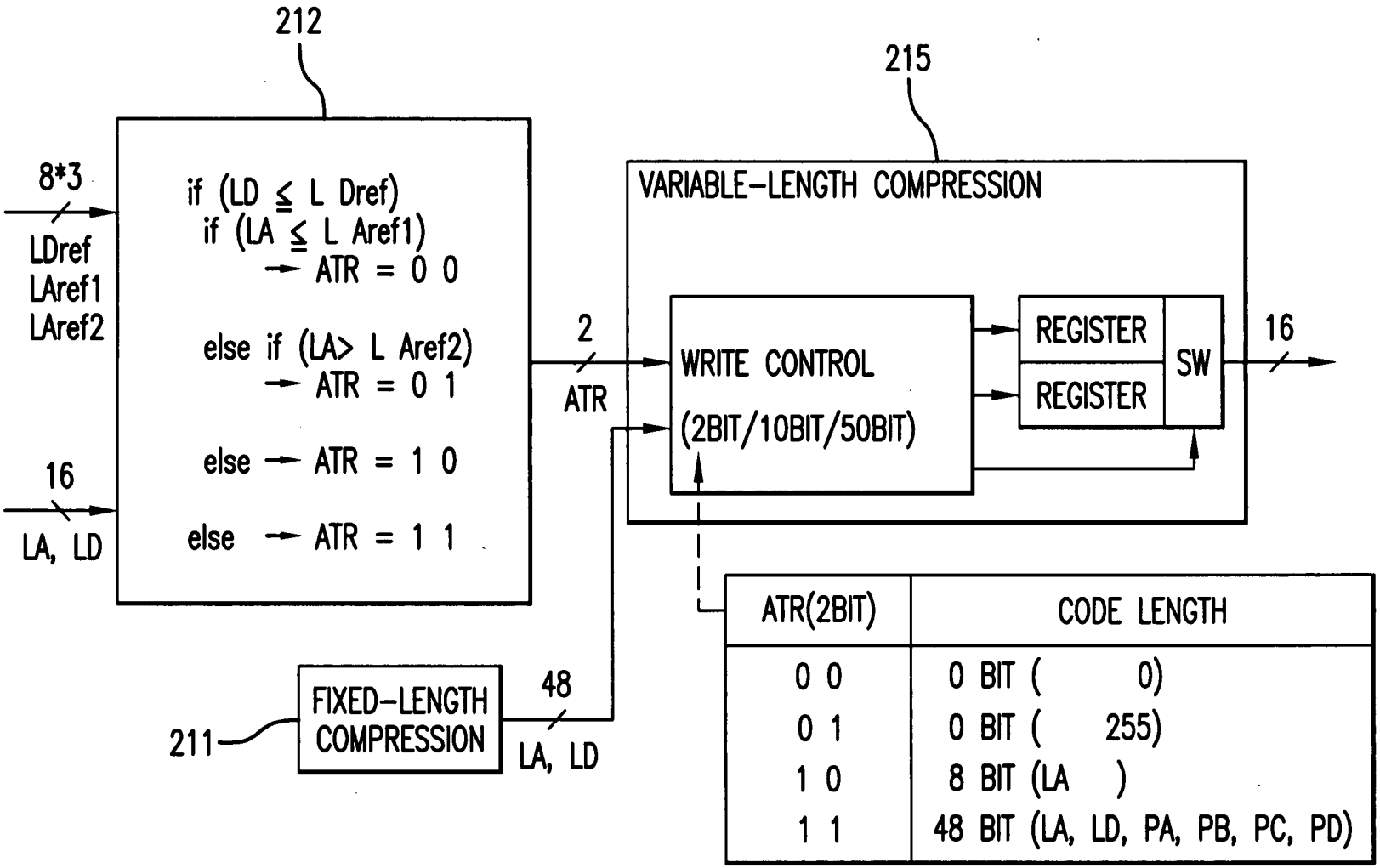
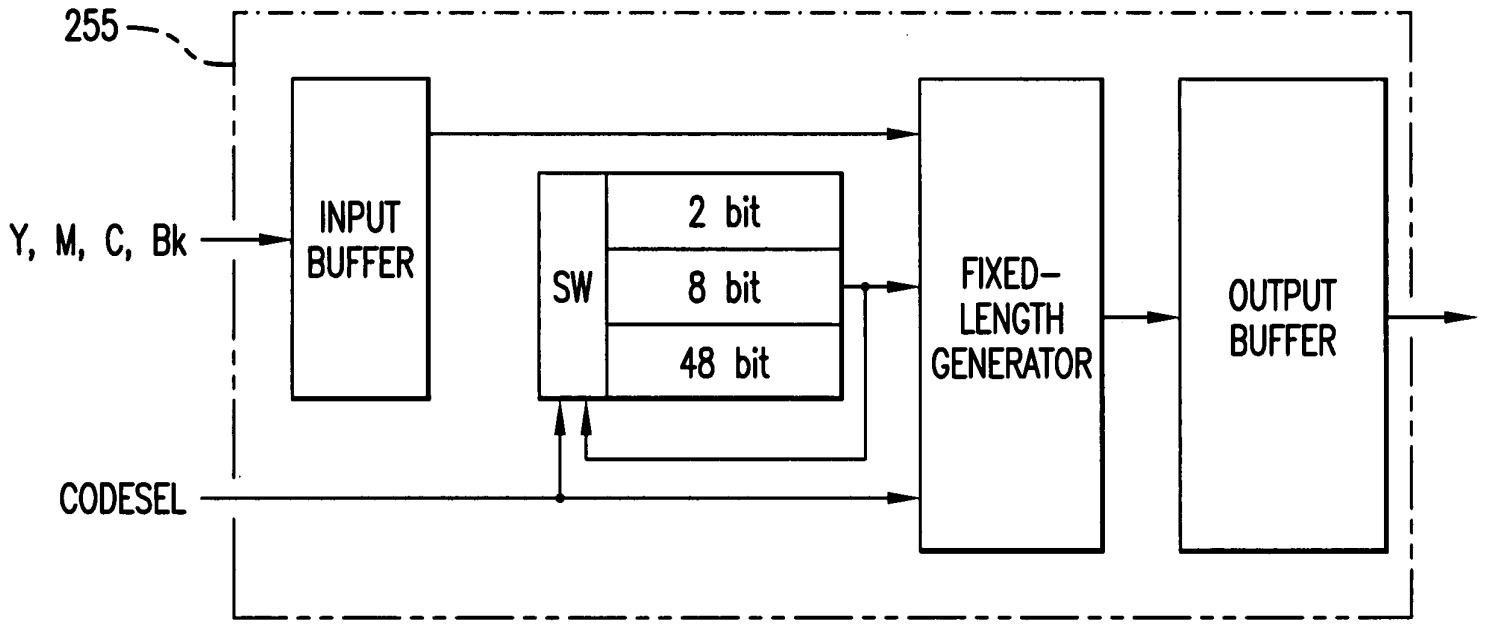

212
215
8*3
LDref
LAref1
LAref2
16
LA, LD
if (LD ≤ L Dref)
if (LA ≤ L Aref1)
→ ATR = 0 0
else if (LA> L Aref2)
→ ATR = 0 1
else → ATR = 1 0
else → ATR = 1 1
2
ATR
VARIABLE-LENGTH COMPRESSION
WRITE CONTROL
(2BIT/10BIT/50BIT)
REGISTER
REGISTER
SW
16
211
FIXED-LENGTH COMPRESSION
48
LA, LD
ATR(2BIT)
CODE LENGTH
0 0
0 BIT (0)
0 1
0 BIT (255)
1 0
8 BIT (LA)
1 1
48 BIT (LA, LD, PA, PB, PC, PD)

FIG.5



CODESEL	2 bit	READ CODE LENGTH	(48 bit) LA, LD, PA, PB, PC, PD
1	(00)	0 bit	(0, 0, 0, 0, 0, 0)h
	(01)	0 bit	(ff, 0, 0, 0, 0, 0)h
	(10)	8 bit (F1)	(F1, 0, 0, 0, 0, 0)h
	(11)	48 bit (F1, F2, F3, F4, F5, F6)	(F1, F2, F3, F4, F5, F6)h
0	–	48 bit (F1, F2, F3, F4, F5, F6)	(F1, F2, F3, F4, F5, F6)h

FIG.6

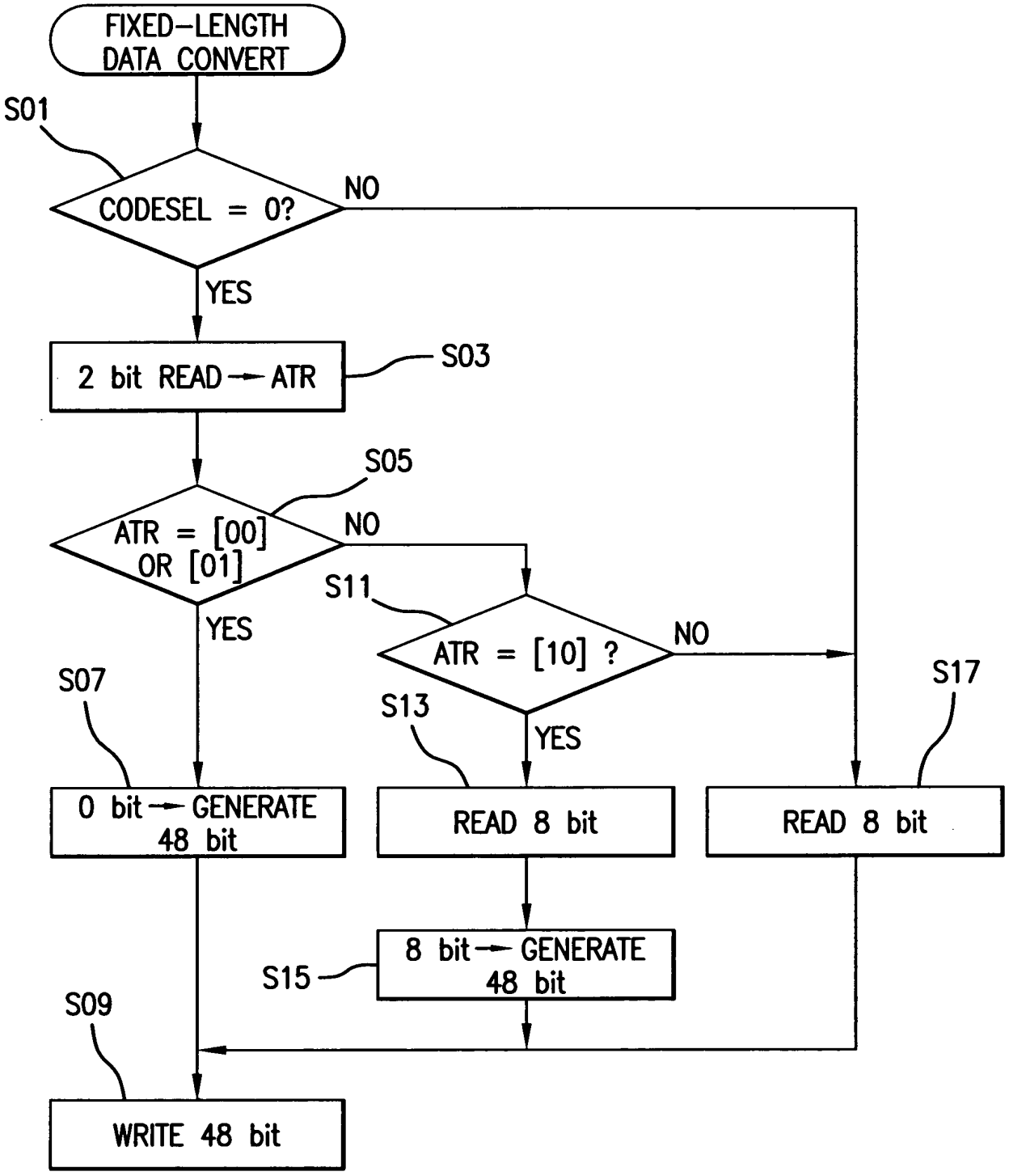

FIXED-LENGTH DATA CONVERT
S01
CODESEL = 0?
NO
YES
2 bit READ → ATR
S03
S05
ATR = [00] OR [01]
NO
YES
S11
ATR = [10] ?
NO
YES
S07
0 bit → GENERATE 48 bit
S13
READ 8 bit
S17
READ 8 bit
S15
8 bit → GENERATE 48 bit
S09
WRITE 48 bit

FIG.7

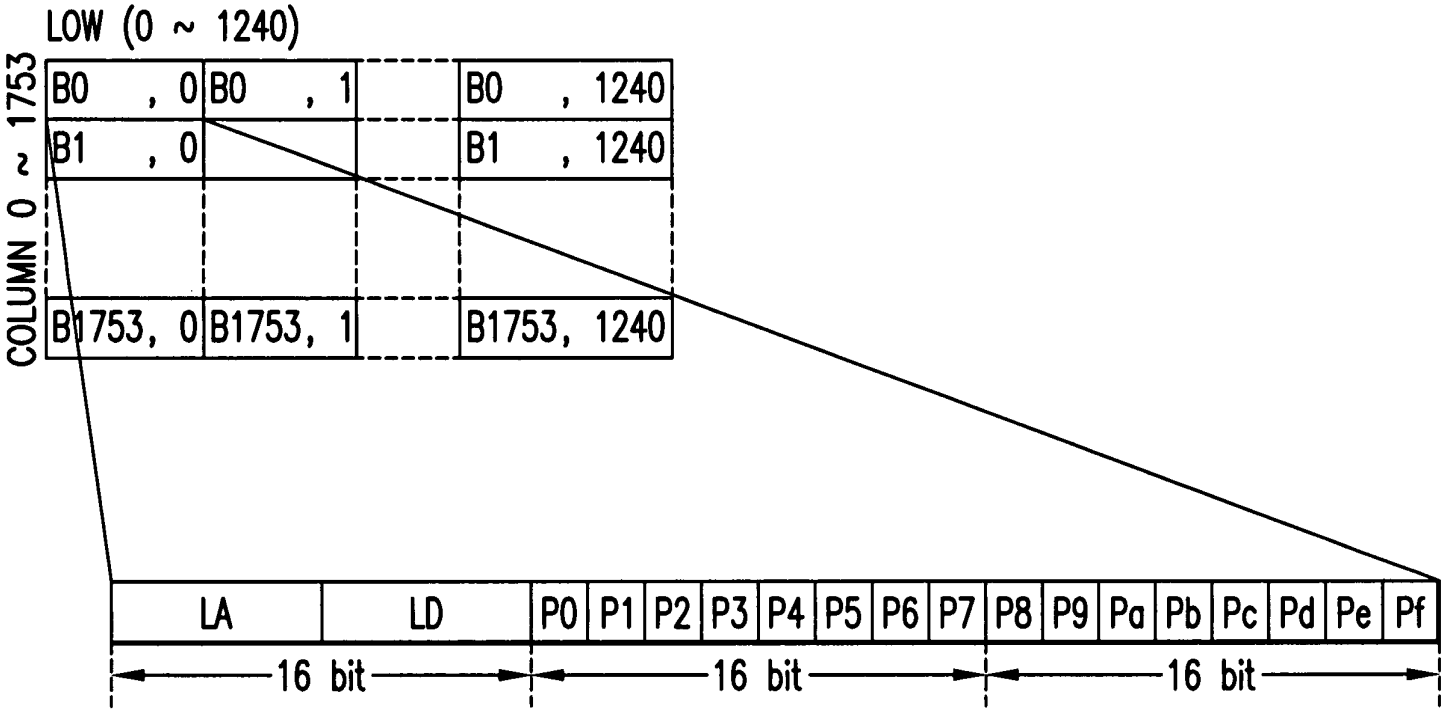

LOW (0 ~ 1240)
COLUMN 0 ~ 1753
B0 , 0
B0 , 1
B0 , 1240
B1 , 0
B1 , 1240
B1753, 0
B1753, 1
B1753, 1240
LA
LD
P0
P1
P2
P3
P4
P5
P6
P7
P8
P9
Pa
Pb
Pc
Pd
Pe
Pf
16 bit
16 bit
16 bit

FIG.8

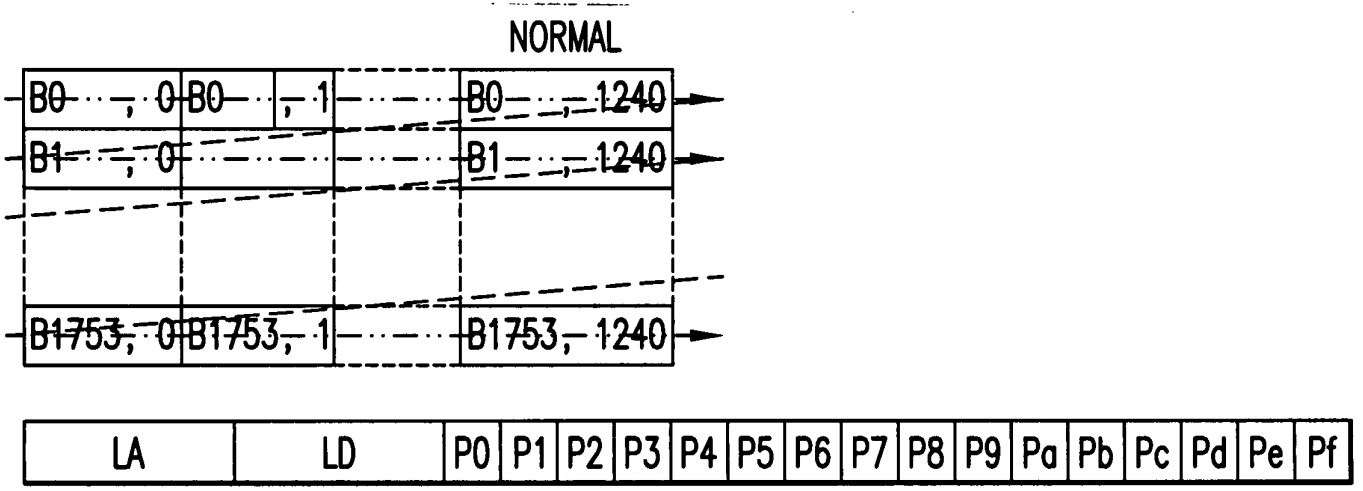

NORMAL
B0 , 0
B0 , 1
B0 , 1240
B1 , 0
B1 , 1240
B1753, 0
B1753, 1
B1753, 1240
LA
LD
P0 P1 P2 P3 P4 P5 P6 P7 P8 P9 Pa Pb Pc Pd Pe Pf

FIG.9A

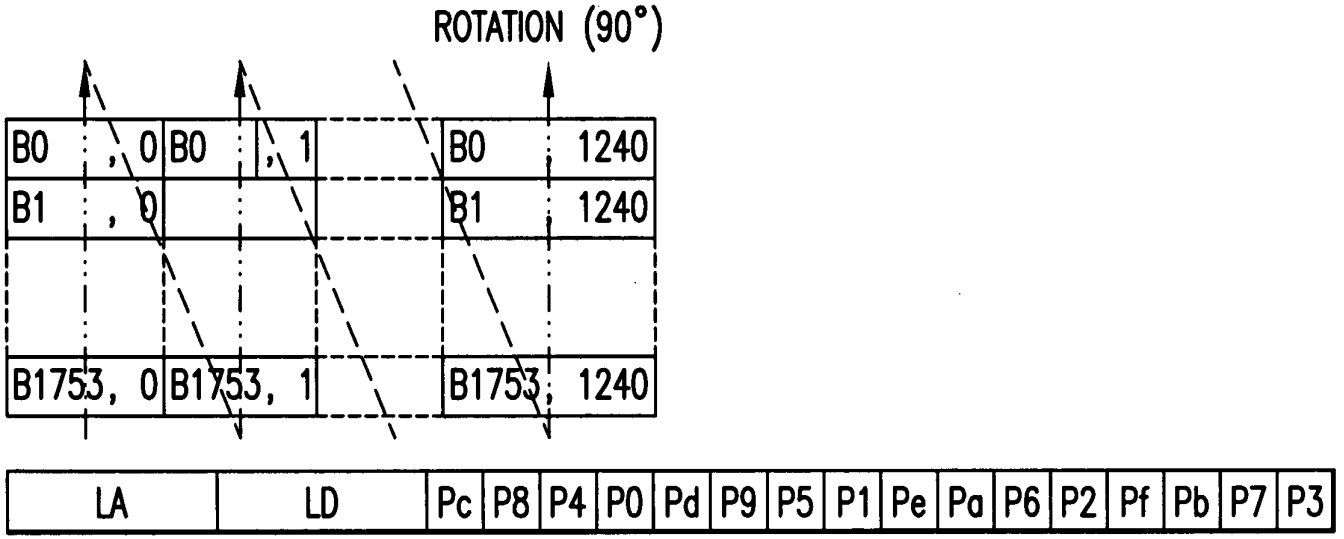
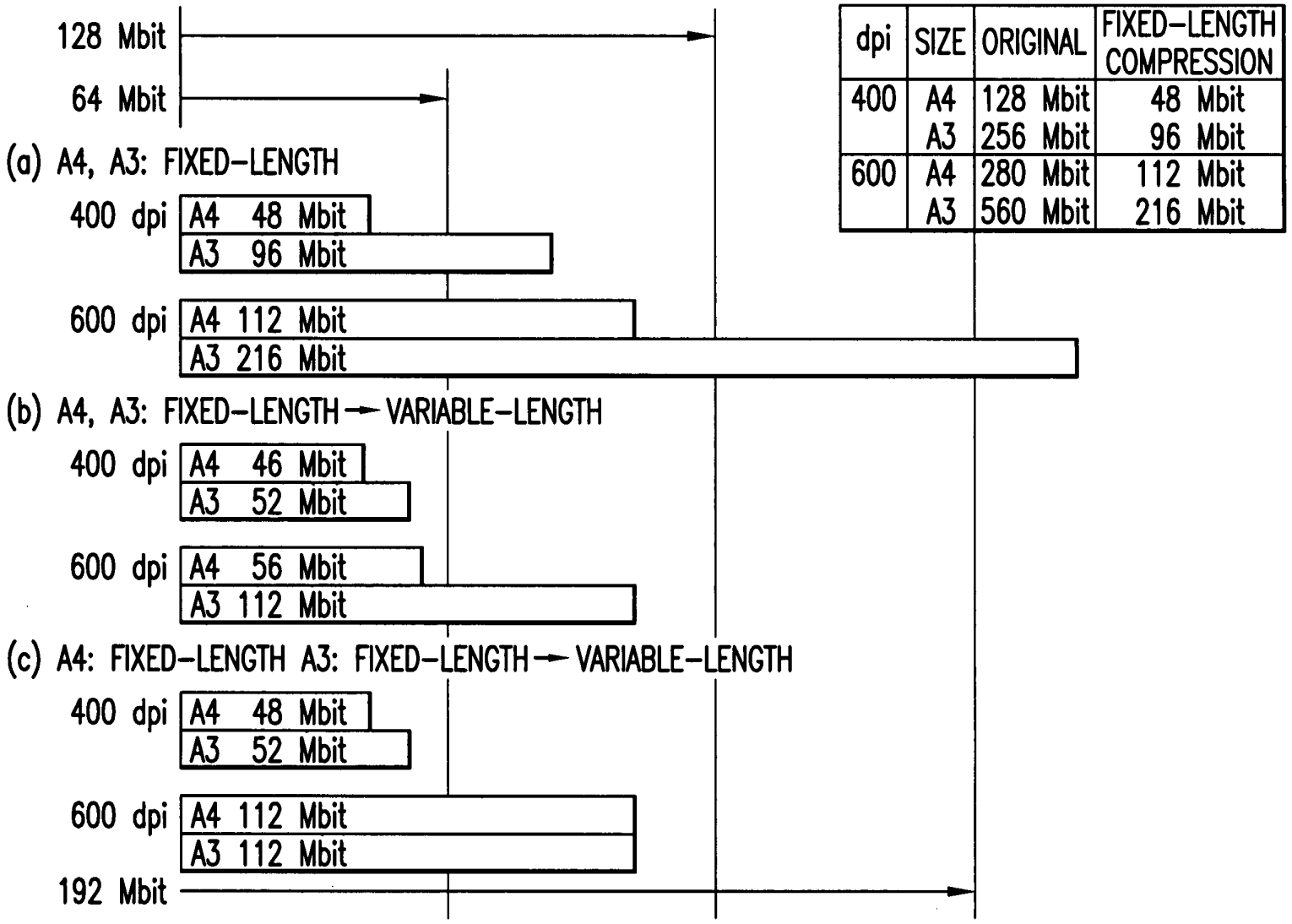

ROTATION (90°)
B0 , 0
B0 , 1
B0 1240
B1 , 0
B1 1240
B1753, 0
B1753, 1
B1753, 1240
LA
LD
Pc P8 P4 P0 Pd P9 P5 P1 Pe Pa P6 P2 Pf Pb P7 P3

FIG.9B



dpi	SIZE	ORIGINAL	FIXED-LENGTH COMPRESSION
400	A4	128 Mbit	48 Mbit
	A3	256 Mbit	96 Mbit
600	A4	280 Mbit	112 Mbit
	A3	560 Mbit	216 Mbit

FIG.10